

WHAT IS CLAIMED IS:

1. A light source usable for detecting defect portions of a planographic printing plate, the light source comprising:

(a) a lamp for irradiating light;

(b) a flexible member for light transmission having two ends, one of which is optically connected to the lamp;

(c) an optical member which is optically connected to the other end of the flexible member and disposed along a widthwise direction of the printing plate;

(d) a lens disposed to receive the light from the optical member, for condensing the light and irradiating the light onto the printing plate; and

(e) a diaphragm disposed on the path of the light for directly or indirectly controlling an amount of light irradiated onto the printing plate.

2. The light source of claim 1, wherein the lamp comprises a metal halide lamp.

3. The light source of claim 1, wherein the flexible member comprises an optical fiber cable.

4. The light source of claim 1, wherein the optical member comprises a quartz rod.

5. The light source of claim 1, wherein the lens comprises a cylindrical lens made of acrylic.

6. The light source of claim 1, wherein the diaphragm is disposed between the lamp and the flexible member.

7. The light source of claim 1, wherein the diaphragm comprises a mechanical iris diaphragm.

8. The light source of claim 1, further comprising a condenser which is disposed between the lamp and the iris diaphragm.

9. A detection apparatus for detecting defect portions of a planographic printing plate, the apparatus comprising:

(A) a light source for irradiating inspection light onto the printing plate;

(B) a polarizing filter disposed to receive inspection light that has been regularly reflected from the printing plate, which transmits substantially only a transverse wave component of the received inspection light; and

(C) an image pickup element disposed to receive inspection light that has passed through the polarizing filter.

10. The apparatus of claim 9, further comprising a unit for controlling an amount of the light from the light source that is irradiated onto the printing plate.

11. The apparatus of claim 9, further comprising a processor connected to the image pickup element, which digitizes and stores a detection signal

outputted from the image pickup element.

12. The apparatus of claim 11, wherein the processor carries out signal processing so as to relatively amplify continuous defect signals.

13. The apparatus of claim 12, wherein the processor detects when the processed signal exceeds a predetermined threshold level and, in response thereto, identifies a defect location on the printing plate.

14. The apparatus of claim 13, further comprising an applicator disposed at the printing plate downstream from an inspection light position, which applies a visible mark at the identified defect location.

15. The apparatus of claim 14, wherein the applicator comprises a labelling machine

16. The apparatus of claim 9, wherein the image pickup element comprises a plurality of CCD cameras, each of which has a CCD sensor incorporated therein.

17. The apparatus of claim 16, wherein the CCD sensors are arranged in a line along a direction orthogonal to a conveyance direction of the printing plate.

18. The apparatus of claim 17, wherein at least one of the CCD linear

sensors comprises a plurality of square-shaped elements.

19. A detection system for detecting defect portions of a planographic printing plate, the system comprising:

(A) a light source apparatus for irradiating inspection light onto the printing plate;

(B) a first CCD camera apparatus disposed to receive diffusively reflected light from the printing plate;

(C) a second CCD camera apparatus disposed to receive regularly reflected light from the printing plate;

(D) a third CCD camera apparatus disposed to receive regularly reflected light from the printing plate;

(E) a fourth CCD camera apparatus disposed to receive diffusively reflected light from the printing plate; and

(F) a detector which processes detection signals outputted from the first to fourth CCD camera apparatuses, detects when a processed signal exceeds a predetermined threshold level and, in response thereto, determines a defect location on the printing plate.

20. The detection system of claim 19, wherein the second CCD camera apparatus comprises a polarizing filter disposed to receive inspection light that has been regularly reflected from the printing plate, the polarizing filter transmitting substantially only a transverse wave component of the received inspection light.